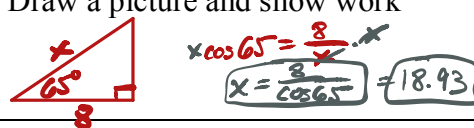


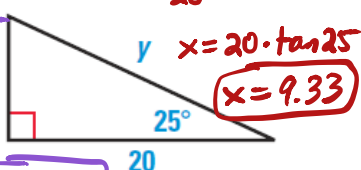
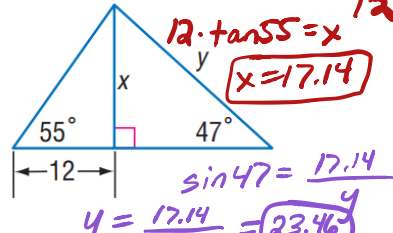
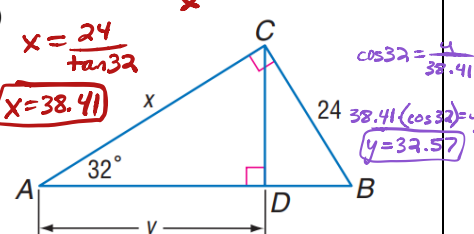
1a) $\frac{\sqrt{3}}{2}$ b) $\sqrt{3}$ c) $\frac{1}{2} - 1 = \boxed{-\frac{1}{2}}$ d) $\frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{1} = \frac{3}{2}$ e) $\frac{1}{\sqrt{2}} \cdot \frac{1}{\sqrt{2}} = \boxed{\frac{1}{2}}$

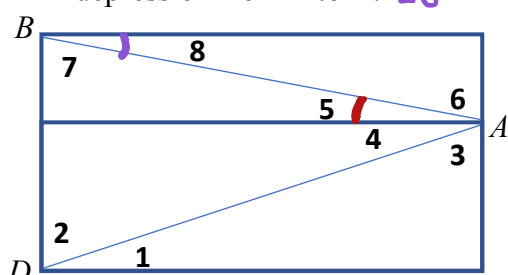
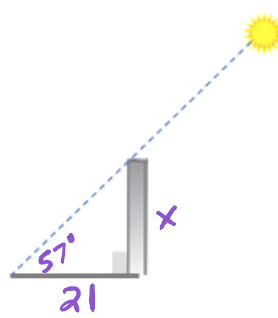
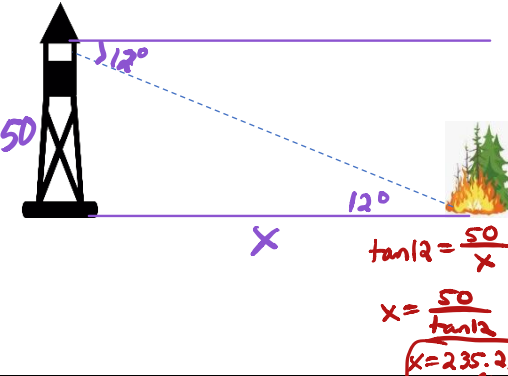
HW #3

Do work on separate paper.

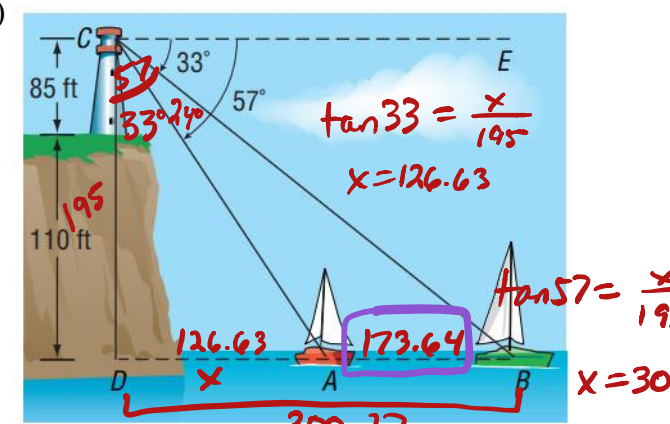
Check your answers at the bottom as you work.

- | | |
|---|--|
| <p>1) Copy the special right triangles from the note sheet onto your homework paper. Use those triangles to find the value of each expression in simple radical form. Copy the problem on your paper.</p> <p>a) $\cos(30^\circ)$ b) $\tan(60^\circ)$ c) $\cos(60^\circ) - \tan(45^\circ)$
 d) $\sin(60^\circ)\tan(60^\circ)$ e) $\sin(45^\circ)\cos(45^\circ)$</p> | <p>2) A ladder is leaning against the side of a house and forms a 65° angle of elevation with the ground. The foot of the ladder is 8 feet from the house. Find the length of the ladder. Draw a picture and show work neatly.</p>  |
| <p>3) When the sun's angle of elevation is 57° a building cast a shadow that is 21 meters long. How tall is the building? See diagram below. Copy the drawing on your paper and show work neatly.</p> <p>$\tan 57 = \frac{x}{21} = \boxed{32.34\text{m}}$</p> | <p>4) A ranger in a look out tower spots a fire off in the distance. The angle of depression from the tower to the fire is 12° and the tower is 50 feet tall. Find the distance from the base of the tower to the fire. See diagram below. Copy the drawing on your paper and show work neatly.</p> |

- 5) Find the value of x and y . Copy the figure on your paper.
- | | | |
|--|--|---|
| <p>a) $\tan 25 = \frac{x}{20}$
 $\cos 25 = \frac{20}{y}$
 $y \cdot \cos 25 = 20$
 $y = \frac{20}{\cos 25} = \boxed{22.07}$</p>  | <p>b) $\tan 55 = \frac{x}{12}$
 $12 \cdot \tan 55 = x$
 $x = \boxed{17.14}$
 $\sin 47 = \frac{17.14}{y}$
 $y = \frac{17.14}{\sin 47} = \boxed{23.46}$</p>  | <p>c) $\tan 32 = \frac{24}{x}$
 $x = \frac{24}{\tan 32}$
 $x = \boxed{38.41}$
 $\cos 32 = \frac{y}{38.41}$
 $38.41(\cos 32) = y$
 $y = \boxed{32.57}$</p>  |
|--|--|---|

- | | | |
|---|--|---|
| <p>6) a) Which angle is the angle of elevation from A to B? $\angle 5$
 b) Which angle is the angle of depression from B to A? $\angle 8$</p>  | <p>Picture for (3)</p>  | <p>Picture for (4). Picture not to scale.</p>  |
|---|--|---|

Challenge:

- 7) 

$\tan 33 = \frac{x}{195}$
 $x = 126.63$

$\tan 57 = \frac{x}{195}$
 $x = 300.27$

Distance between boats: $300.27 - 126.63 = \boxed{173.64}$

Olivia is in a lighthouse on a cliff. She observes two sailboats due east of the lighthouse. The angles of depression to the two boats are 33° and 57° . Find the distance between the two sailboats to the nearest foot. 173.64 ft

Do work on your paper.

Jumbled Answers: 1) $\frac{3}{2}$ $\frac{1}{2}$ $\sqrt{3}$ $-\frac{1}{2}$ $\frac{\sqrt{3}}{2}$ 2-4) $32.34 \approx 32$ $18.93 \approx 19$ $235.23 \approx 235$
5) $38.41, 32.57, 9.33, 23.43, 17.14, 22.07$

